Logic

Introduction

▶ In day to day life we generally deal with words sentences and statements the combination of words come logic or reasoning then that sentence becomes statement in the proceding section ve shall deal with logical statements compound statement.

▶ **Definitions:**

  sentence sensible combination words is called sentence

1. Number of natural number is Infinite.

2. Number of positive or negetive integer is infinite

Propositions or statement

- The declarative Statements which are true or false but not both are called proposition. The sentence 4+4=8 is true. Which while the sentence. Chandigarh capital of maharasthra. Is false

- Compound propositions

  Two or more.propositions are combined to form compound preposition

. Using connective and,or,not if then,if and only if

  For instance'sham is an honest boy' is a logical statement And 'is sham

  an honest boy'? Is not a statement but a sentence only 'similarly

  ' sham is a hardworking boy' is also a logical statement

Truth tables

- They give truth value of a compound statement. It has rows and columns
. The number of columns depends upon the number of simple statement and how involved are their relationship. The number of rows depends only Upon the number of simple statement.when we have a statement, then There are 2^n rows
. Ex.1. Given the following sentences, determine which is a statement and Find the truth ness of the statement.
. 1. Is sham an honest boy?   2. Sham is an honest boy.
. 3.moon is heavenly body.   4. May god bless you with a son?

5. 7 is not a prime number.   6. Delhi is capital of India.

7. The USA.is a nuclear power.   8. 7×5+4=40.

9. Today is Monday.   10. Why are you going to delhi?

Sol.(i) is not a statement because of the exclamation mark. It does not give or false the sentence.

(ii) it is a statement.it can be true or false.

(iii) it is a true statement

(iv) it is not a statement because of exclamation mark.it does not give

.   Truth ness or falseness sentence

.   (V) it is a false statement

.   (Vi) it is a true statement

- (vii) it is a true statement
- (viii) it is a true statement
- (ix) it is a statement. It can be true for one day and false for other
- (X) this is a statement.as the sentence is interrogative.